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(71) Applicant(s)

**Aldershire Limited**  
(Incorporated in the United Kingdom)  
Unit 1, Drumhead Road, Chorley North  
Business Park, CHORLEY, Lancs, PR6 7BX,  
United Kingdom

(72) Inventor(s)

**Howard Dudley Malcolm**

(74) Agent and/or Address for Service

**Marks & Clerk**  
Sussex House, 83-85 Mosley Street, MANCHESTER,  
M2 3LG, United Kingdom

(51) INT CL<sup>6</sup>

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(56) Documents Cited

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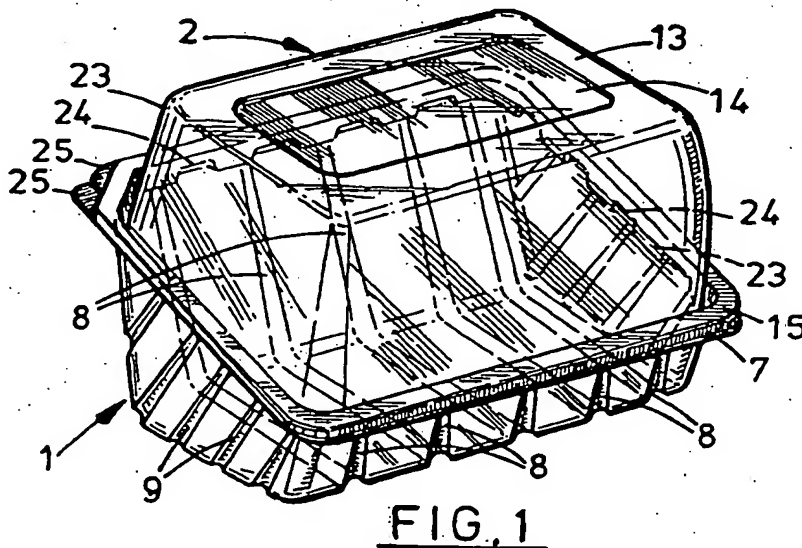
(58) Field of Search

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**INT CL<sup>6</sup> B65D 1/34 1/46 51/16**  
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(54) Abstract Title

**A sealable container for food**

(57) A sealable container for food has a base 1 and a lid 2 with marginal edges 7, 15 which engage one another and at least one of the marginal edges has at least one aperture or recess. The base 1 and lid 2 are movable relative to each other between first and second engaged positions. In the first engaged position (Figure 7) the base and lid are sealed together so as to prevent communication between the interior of the container and the surrounding atmosphere. In the second engaged position (Figure 8) the base and lid are disposed so that the aperture or recess is exposed to permit for example the container to be filled with a preservative gas that would keep the food produce fresh whilst on display. The marginal edges of either the base 1 or the lid 2 may be in the form of a castellated rim (20 Figure 8). The container may be heat sealed.



**FIG. 1**

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

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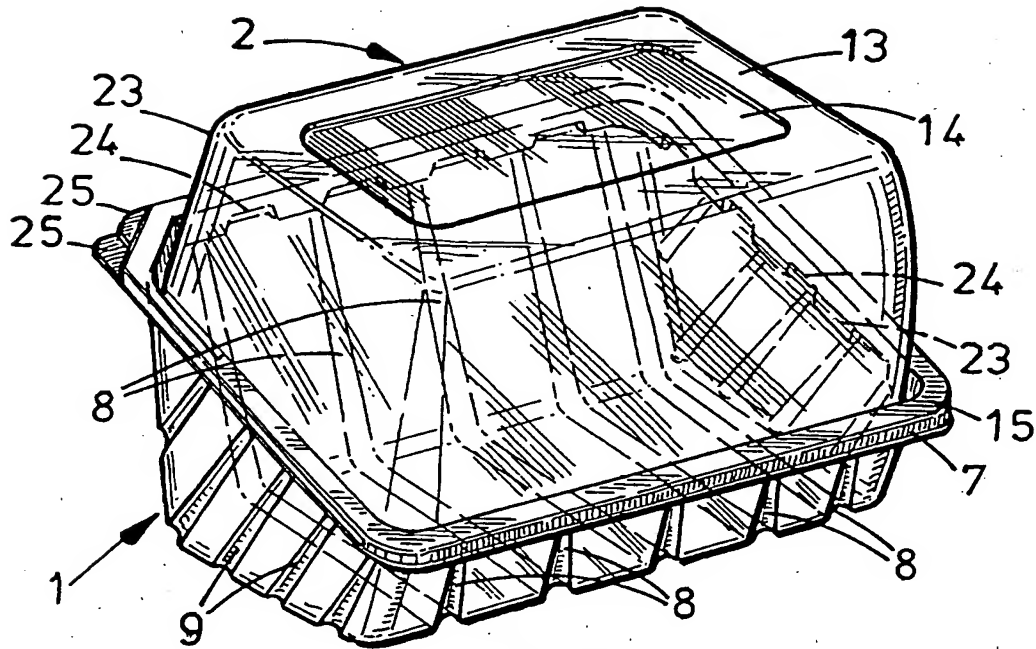


FIG. 1

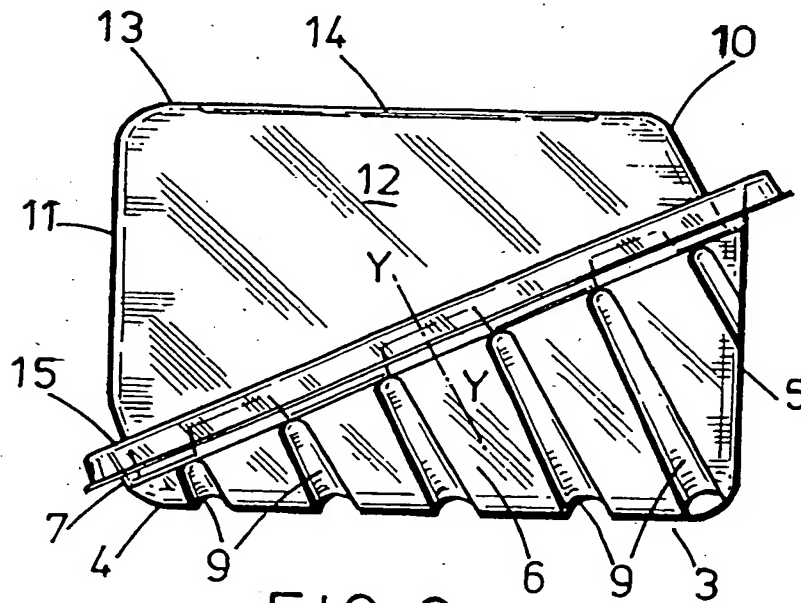
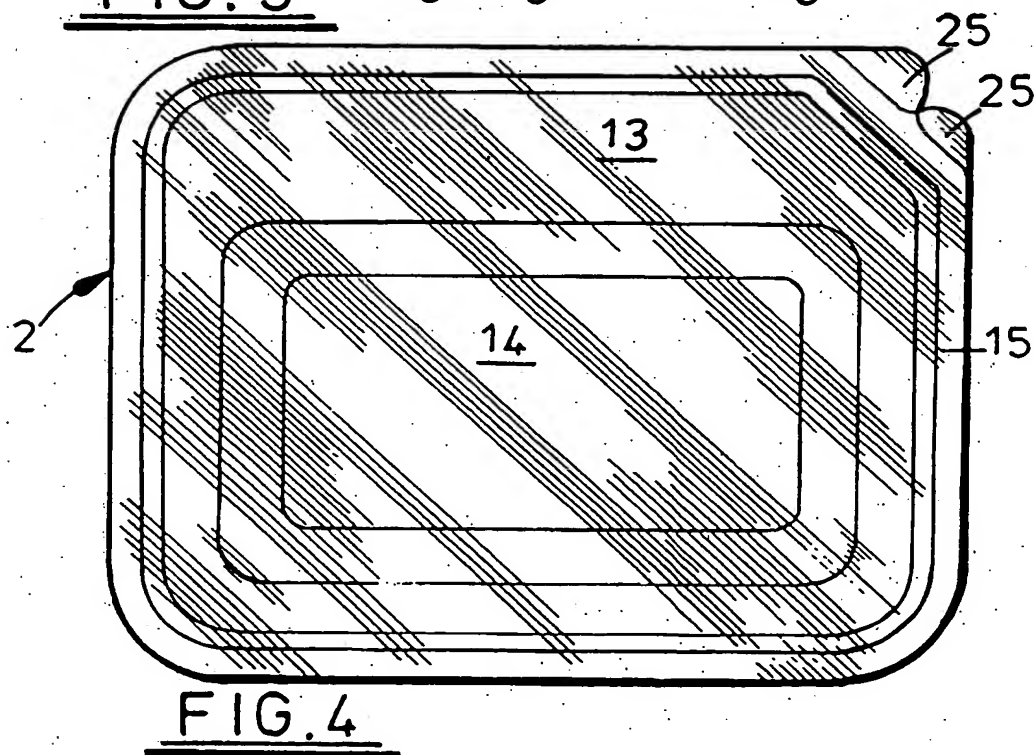
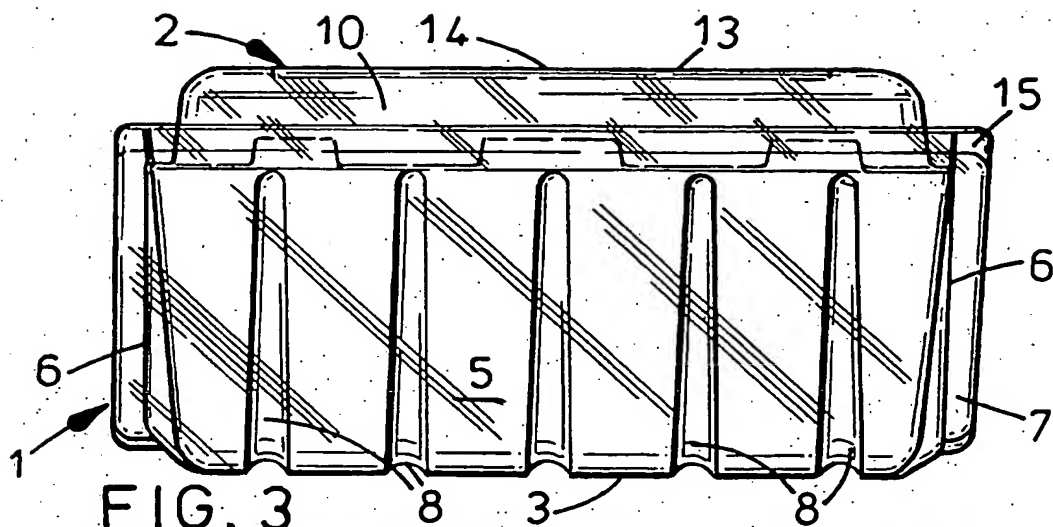


FIG. 2

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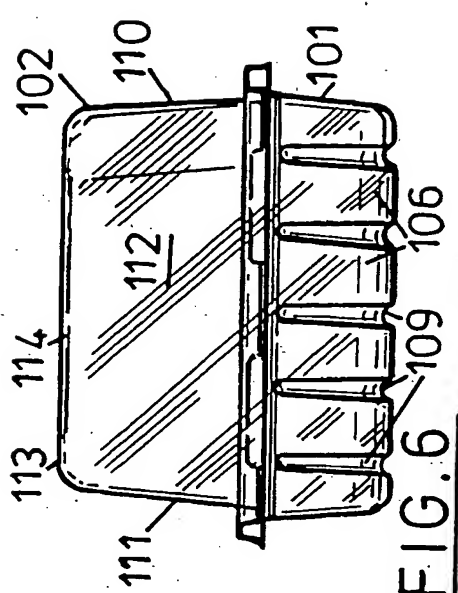


FIG. 6

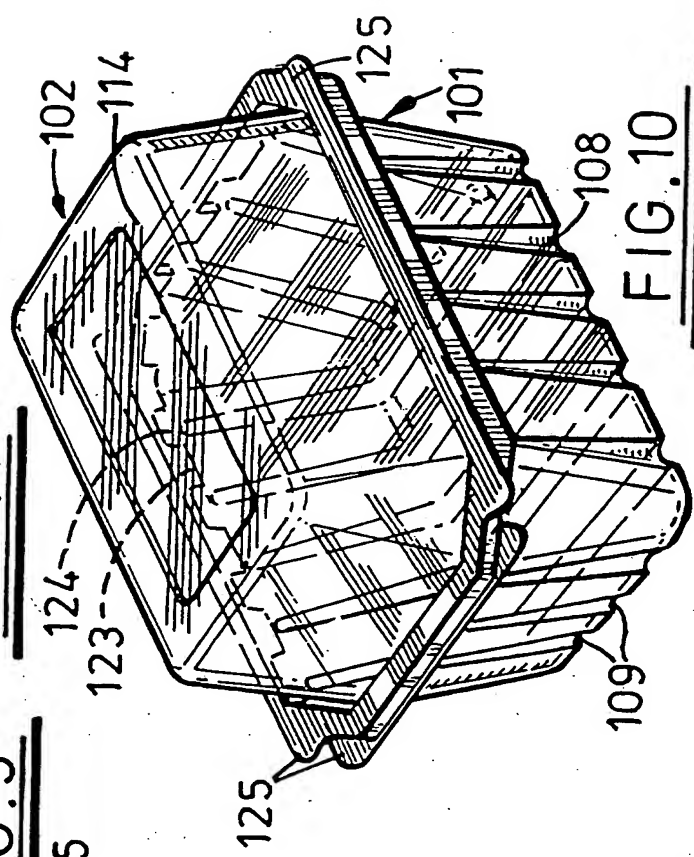


FIG. 10

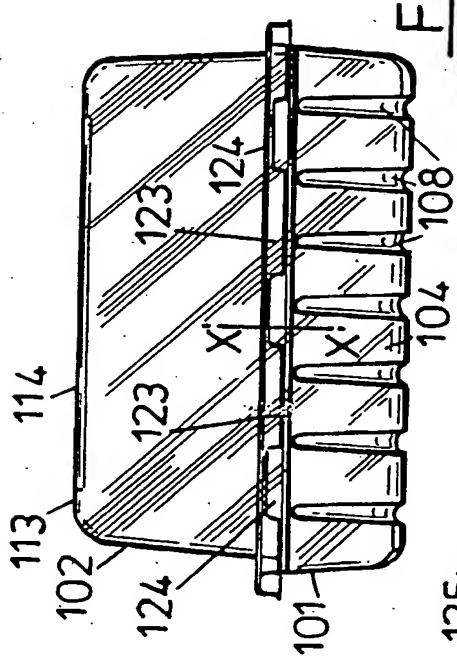


FIG. 5

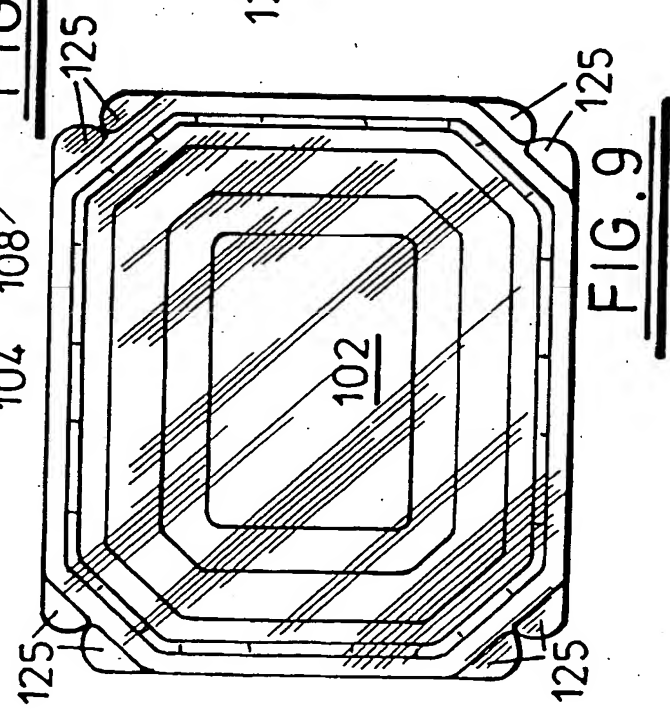


FIG. 9

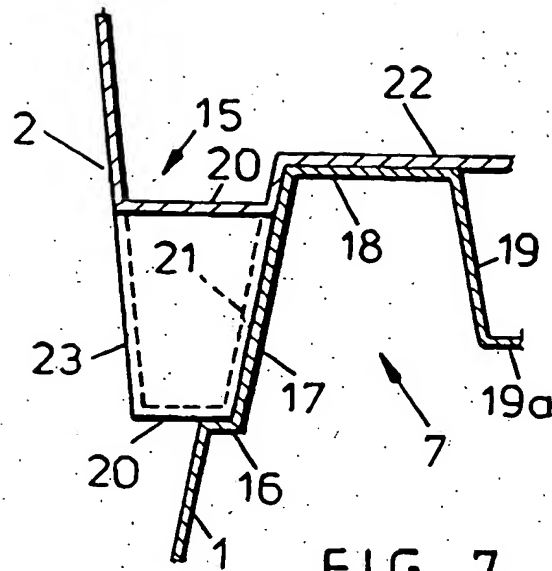


FIG. 7

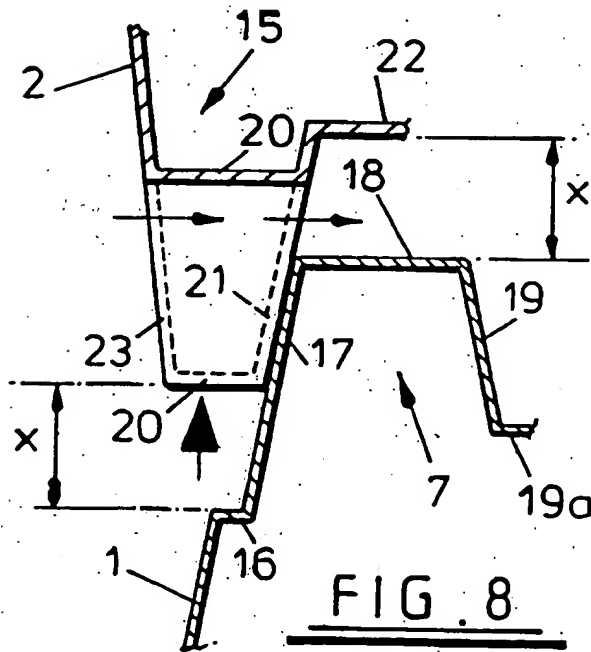


FIG. 8

### A SEALABLE CONTAINER FOR FOOD

The present invention relates to a sealable container for food and more particularly to such a container of the kind used in the storage, packaging and display of foodstuffs.

One type of known container used to display fresh meat on supermarket shelves comprises a rigid deep-sided tray made typically of a thermoformed plastics material and having an open top which is sealed by a transparent plastics film after the meat has been placed in the tray. In the packaging process the open tray (with the meat therein) is passed through and sealed by the plastics film in an oxygen-rich environment so as to ensure the evacuation of air within the tray. Sealing the meat within an oxygen-rich atmosphere increases the shelf life of the product and keeps it fresher for a longer period. However, the drawback with the above container is that if the meat comes into contact with the plastics film it tends to discolour rendering the product aesthetically unattractive to potential customers.

It is an object of the present invention to obviate or mitigate the aforesaid disadvantage.

According to the present invention there is provided a sealable container for food comprising a base and a lid each having a marginal edge at which they engage one another, wherein the marginal edge of at least one of the base or lid has at least one aperture or recess and wherein base and lid are moveable relative to each other between first and second engaged positions, in said first engaged position the base and lid being sealed together so as to prevent communication between the interior of the container and the surrounding atmosphere and in said second engaged position the base and lid being disposed so as to expose said aperture or recess thereby permitting communication between the surrounding atmosphere and the interior of the container.

The arrangement of the present invention allows the base and lid to be moved from the first engaged position where they are fully engaged so as to seal the container to a second engaged non-sealed position in which the interior of the container is exposed so as to permit the filling of the container with a suitable preservative gas

such as oxygen without having to remove the lid from the base, thereby keeping the produce fresh whilst on display.

The marginal edges are preferably in the form of peripheral rims that overlies one another and extend outwardly of the container. The base may have an upstanding rim with the lid having a depending rim. An outer face of the base rim may conveniently overlie and engage an inner face of the lid in both said first and second engaged positions. In second position the rims are preferably separated slightly whilst said faces remain in contact.

The aperture or recess may be provided by at least one of the base or lid rim having a formation comprising one or more peaks and troughs. In the second engaged position the separation of the rims exposes one or more troughs. In an exemplary embodiment the rim is castellated

The container may have opposed bottom and top walls and opposed upright side walls and the rim may be inclined to the bottom and top walls from one side wall to the other.

The rims of the base and lid may have walls that in the first engaged position overlie one another so as to enable them to be heat sealed together.

Specific embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a perspective view from above of a sealable container in accordance with the present invention;

Figure 2 is a side view of the container of figure 1;

Figure 3 is a rear view of the container of figure 1;

Figure 4 is a plan view of the container of figure 1;

Figure 5 is a front view of an alternative embodiment of a sealable container of the present invention;

Figure 6 is a side view of the container of figure 5;

Figure 7 is a scrap sectioned view along line X-X of figure 5 and line Y-Y of figure 2 with the container in a sealed configuration;

Figure 8 is a view corresponding to figure 7 but with the container in a partially separated configuration;

Figure 9 is a plan view of the container of figure 5; and

Figure 10 is a perspective view of the container of figure 5.

Referring now to the drawings, figures 1 to 4 show a transparent thermoformed plastics container having a base 1 and a lid 2. The container is typically used to package and display fresh produce such as a joint of meat.

The base of the container has bottom, front, rear and side walls 3,4,5 and 6 and an open top which has a peripheral rim 7. The rear wall 5 is inclined outwardly and is significantly deeper than the opposite front wall 4 which is similarly inclined. The upper edge of the side walls 6 are therefore inclined downwardly from rear to front. Parallel spaced reinforcing grooves 8 extend down the rear wall 5, along the base wall 3 and up the front wall 4 and separate spaced inclined grooves 9 extend along the side walls 6.

The lid 2 similarly has rear, front and side walls and a top wall 10,11,12 and 13. The lid 2 is of complementary shape to the base 1 in that the front wall 11 is deeper than the rear wall 10 and the side walls 12 are inclined at the same angle as the side walls 6 of the base 1. The top wall 13 of the lid 2 does not have grooves but rather exhibits a rectangular indentation 14. Opposite the top wall 13 the lid 2 is open with a peripheral outwardly extending rim 15.

The rim 7 (shown in detail in figures 7 and 8) of the base 1 is integrally joined to the side, front and rear walls 6,4,5 and comprises a horizontal inwardly extending shoulder 16 on which part of the rim 15 of the lid 2 is seated (as described later), an upwardly inclined wall 17 integral with the horizontal shoulder 16, the inclined wall 17 extending outwardly of the container, parallel to the front wall 4, a horizontal outwardly extending wall 18 and a downwardly and outwardly inclined wall 19 with a peripheral lip 19a that projects outwardly of the container.

The rim 15 of the lid 2 comprises a castellated edge 20 that is seated, when the lid and base are fully engaged, on the horizontal shoulder 16 of the base rim 7, an upwardly inclined wall 21 that engages in a friction fit with the corresponding

inclined wall 17 of the base rim 7 and a terminal horizontal ledge 22 that projects outwardly of the container and sits over the horizontal wall 18 of the base rim 7. The castellated edge of the lid rim 15 comprises a plurality of lands 23 interspersed by gaps 24.

In the embodiment shown in the drawings, at one of the corners of the container the lip 19a of base rim 7 and the ledge 22 of the lid rim 15 have outwardly extending arcuate lugs 25 that partially overlap. The purpose of these lugs 25 is described below.

The base 1 and lid 2 are releasably engageable by virtue of the engageable rims 7,15. When the base and lid 1,2 are fully engaged (as shown in figure 7) a bottom edge of the lands 23 of the castellated edge 20 abut against the horizontal shoulder 16 of the base rim 7 as do the ledge 22 of the lid rim 15 and the horizontal wall 18 of the base rim 7. In this fully engaged configuration the castellated edge 20 of the lid rim 15 is sealed against the inclined wall 17 of the base rim 7 so that the atmosphere around the container is prevented from entering the container.

In a second engaged configuration (shown in figure 8) the base and lid 1,2 of the container are moved apart slightly in a vertical direction so that the rims 7,15 are not fully engaged and are not in a sealing relationship. The shoulder 16 and the land 23 of the castellated edge 20 are separated by a small distance  $x$  and the gap 24 of the castellated edge 20 is clear of the horizontal wall 18 of the base rim 7 so as to expose the gap 24. This enables the atmosphere within the container to be evacuated through the gap 24 (as indicated by the arrows shown in figure 8) and replaced by a suitable preserving atmosphere.

In the packaging process the food product is placed in the base 1 and the lid 2 is secured in the fully engaged configuration to the base 1. The filled container is then passed through an oxygen-rich environment as is common place in this field. In this environment a vacuum cup (not shown) is applied to the top wall 13 of the lid 2 and moved upwardly so as to lift it to the second engaged configuration and to expose the gaps 24 of the castellated edge 20. This enables the air within the container to be replaced by an oxygen-rich atmosphere, thereby ensuring better preservation of the

foodstuff in its fresh state. Before it leaves the oxygen rich atmosphere the lid 2 is pushed downwardly so that it returns to the fully engaged configuration. The lid 2 is then fixedly sealed to the base by applying a heat seal to the ledge 22 and horizontal wall 18 of the base rim 7. Such a technique is well known in the art and is therefore not described in any detail here.

In an alternative configuration the base and lid may be separated by application of suitable mechanical equipment to the lugs 25 at the corner of the container rim. The lugs 25 may be pulled in opposite direction to effect the separation. Whilst only one pair of ears is shown in the embodiment of figures 1 to 4, they may be provided at one or more of the other corners.

Instead of being passed through an oxygen-rich environment, oxygen may be forced into the container by one or more jets directed at the exposed gaps 24 in the container rim 7,15.

An alternative embodiment of the container is shown in figures 5,6,9 and 10 in which features corresponding to those of figures 1 to 4 are indicated by the same reference numerals increased by 100 and are not further described except insofar as they differ from their counterparts of figures 1 to 4. The container differs from that described above in relation to figures 1 to 4, 7 and 8 in that the edge of the side walls 106 is not inclined and the rim 107,115 is horizontally disposed all the way around the container. The reinforcing grooves 109 in the side wall 106 are consequently vertical and not inclined as in the embodiment described above.

The shape of the containers described above and in particular the depth of the lid permits it to accommodate large items such as joints of beef or the like.

It will be appreciated that numerous modifications to the above described design may be made without departing from the scope of the invention as defined in the appended claims. For example, the castellations may be formed on the base rim of the container as opposed to the lid rim. In addition, the castellated edge may be replaced by apertures that are closeable by the opposite rim in the fully engaged configuration and exposed in the separated configuration or the edge may be of an alternative form having a plurality of peaks and troughs e.g. an undulating edge. It

will be appreciated that whilst the whole edge of the rim is shown castellated in the exemplary embodiments, the invention could still be performed with only a single castellation or aperture.

### CLAIMS

1. A sealable container for food comprising a base and a lid each having a marginal edge at which they engage one another, wherein the marginal edge of at least one of the base or lid has at least one aperture or recess and wherein base and lid are moveable relative to each other between first and second engaged positions, in said first engaged position the base and lid being sealed together so as to prevent communication between the interior of the container and the surrounding atmosphere and in said second engaged position the base and lid being disposed so as to expose said aperture or recess thereby permitting communication between the surrounding atmosphere and the interior of the container.
2. A sealable container according to claim 1, wherein the marginal edges are in the form of peripheral rims.
3. A sealable container according to claim 2, wherein the base has an upstanding rim and the lid has a depending rim and an outer face of base rim overlies and engages with an inner face of the lid rim in both the first and second engaged positions.
4. A sealable container according to claim 3, wherein in the second engaged position the rims are separated slightly with the outer face of the base rim still in engagement with the inner face of the lid.
5. A sealable container according to any preceding claim, wherein one of base or lid rim has a formation comprising a plurality of peaks and troughs.
6. A sealable container according to claim 5, wherein the rim is castellated.

7. A sealable container according to any preceding claim, wherein container has opposed bottom and top walls and opposed upright side walls and the rim is inclined to the bottom and top walls from one side wall to the other.
8. A sealable container according to any preceding claim, wherein the rims of the base and lid have walls that in the first engaged position overlies one another so as to enable them to be heat sealed together.
9. A sealable container substantially as hereinbefore described with reference to figures 1 to 4, figure 7 and 8 of the accompanying drawings.
10. A sealable container substantially as hereinbefore described with reference to figures 5 to 10 of the accompanying drawings.



Application No: GB 9802750.1  
Claims searched: all

Examiner: Claire L Williams  
Date of search: 29 April 1999

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): B8P (PE2B, PK5, PL6, PV)

Int Cl (Ed.6): B65D 1/34, 1/46, 51/16

Other: ONLINE:WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 4600117 (TZIFKANSKY) whole document	1 - 3, 5, 6
X	US 4576309 (TZIFKANSKY) whole document and in particular Figures 12 - 22, and columns 3 - 5	1 - 3, 5, 6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.